CLAIMS

1. In a mobile wireless telecommunications system, which includes base stations of a first type operating over a first air interface, and base stations of a second type operating over a second air interface, a method for reselection by a mobile station camped on a cell associated with a first base station, which is of the first type, of a second base station, which is of the second type, comprising:

receiving signals over the second air interface from the second base station;

evaluating a characteristic of the signals;

responsive to the characteristic, selecting the second base station in place of the first base station; and

camping on a cell associated with the second base station.

2. A method according to claim 1, wherein one of the first and second air interfaces comprises a TDMA air interface, and the other comprises a CDMA air interface.

3. A method according to claim 2, wherein evaluating the characteristic comprises applying a CDMA path loss criterion to the signals.

4. A method according to claim 2, wherein selecting the second base station comprises applying cell selection and reselection procedures over the CDMA air interface in a manner substantially transparent to a GSM radio interface protocol layer of the mobile station.

5. A method according to claim 2, wherein while the mobile station is camped on the cell associated with the base station operating over the CDMA air interface, it performs idle mode procedures generally in accordance with a GSM standard.

6. A method according to claim 1, wherein selecting the second base station in place of the first base station comprises using a single radio resource management protocol layer in the mobile station supporting both GSM/TDMA and CDMA operating modes.

7. A method according to claim 6, wherein the radio resource management protocol layer comprises parallel GSM and CDMA protocol sublayers and a combiner sublayer which selects either the GSM or the CDMA operating mode.

8. A method according to claim 7, wherein the combiner sublayer receives messages from a mobility management protocol layer at a service access point in accordance with GSM standards, and maps the messages to primitives which it directs to the selected GSM or CDMA sublayer.

9. A method according to claim 1, wherein receiving the signals over the second air interface comprises receiving signals using a single radio transceiver in the mobile station which is also used to receive the signals over the first air interface.

10. A method according to claim 9, wherein receiving the signals comprises receiving signals in either a GSM or a CDMA signaling mode.

11. A method according to claim 1, wherein while the mobile station is camped on the cell associated with the first base station, it receives signals therefrom during intermittent active periods of the mobile station, and wherein receiving the signals over the second air interface comprises seeking and receiving signals during sleep periods of the mobile station intermediate the active periods.

12. A method according to claim 1, wherein receiving the signals comprises controlling the mobile station to receive signals over the second air

interface responsive to a detected loss of coverage by signals on the first air interface.

13. A method according to claim 1, wherein receiving the signals comprises initiating monitoring of signals over the second air interface responsive to an indication that a predetermined monitoring criterion has been met.

14. A method according to claim 13, wherein the indication comprises a message broadcast to the mobile station over the first air interface that cells are available over the second air interface.

15. A method according to claim 13, wherein initiating the monitoring comprises initiating monitoring over the second air interface responsive to a level of the signals received over the first air interface.

16. A method according to claim 15, wherein the mobile station attempts to receive signals from a plurality of candidate cells over the first air interface, and wherein initiating the monitoring comprises initiating monitoring over the second air interface when the signals received over the first air interface are below a predefined level for a predetermined period of time.

17. A method according to claim 13, wherein the mobile station attempts to receive signals from a plurality of candidate cells over the first air interface, and wherein initiating the monitoring comprises initiating monitoring over the second air interface when the number of candidate cells over the first interface is less than a predetermined minimum number for a predetermined period of time.

18. A method according to claim 13, wherein initiating the monitoring comprises initiating monitoring upon expiration of a predetermined time period during which monitoring over the second air interface has not occurred.

19. A method according to claim 1, wherein receiving the signals comprises regulating energy expended by the mobile station in receiving the signals responsive to a desired level of energy consumption by the mobile station.

20. A method according to claim 19, wherein regulating the energy expended comprises setting a sampling rate at which to receive the signals responsive to the desired level of energy consumption.

21. A method according to claim 19, wherein regulating the energy expended comprises choosing a number of the base stations of the second type from which to receive the signals responsive to the desired level of energy consumption.

22. A method according to claim 19, wherein regulating the energy expended further comprises regulating the availability of the mobile station to receive the signals responsive to a desired level of quality of service provided by the mobile station.

23. A method according to claim 1, wherein evaluating the characteristic comprises comparing the signals received from the second base station to signals received over the first air interface from the first base station and applying reselection criteria to the received signals so as to determine whether to select the second base station.

24. A method according to claim 23, wherein applying the criteria comprises weighting measured characteristics of the signals responsive to a predetermined air interface preference.

25. A method according to claim 24, wherein the preference is set by a user of the mobile station.

26. A method according to claim 24, wherein the preference is set by a network with which the base stations are associated.

27. A method according to claim 24, wherein the mobile station stores a record of the preference.

28. A method according to claim 23, wherein applying the criteria comprises applying a predetermined hysteresis factor so as to prevent recurrent reselection of the air interface.

29. A method according to claim 23, wherein comparing the signals comprises performing an assessment of strong neighbor cells when the mobile station is in a border area of coverage provided over the first air interface.

30. A method according to claim 1, wherein evaluating the characteristic comprises comparing power levels of the signals received over the first and second air interfaces.

31. A method according to claim 1, wherein evaluating the characteristic comprises comparing path-loss criteria derived from the signals received over the first and second air interfaces.

32. A method according to claim 1, wherein selecting the second base station comprises selecting a base station responsive to selection by the mobile station of a public land mobile network with which to communicate.

33. A method according to claim 1, wherein selecting the second base station comprises receiving information broadcast over the first air interface in relation to criteria for interface reselection, and selecting the second base station responsive to the broadcast information.

34. A method according to claim 1, wherein selecting the second base station comprises storing information in a memory module of the mobile station in relation to criteria for interface reselection, and selecting the second base station responsive to the stored information.

35. In a mobile wireless telecommunications system, which includes a first cell associated with a first air interface, and a second cell associated with a second air interface, a mobile station, comprising:

at least one radio transceiver, which receives signals from the first and second cells over the first and second air interfaces, respectively; and

control circuitry, which processes the signal received from the second cell while the mobile station is camped in idle mode on the first cell, and which evaluates the second signal and, responsive thereto, directs the mobile station to reselect and camp on the second cell.

36. A mobile station according to claim 35, wherein the at least one transceiver comprises a single radio transceiver capable of operating over either the first of the second air interface.

37. A mobile station according to claim 36, wherein while the mobile station is camped on the first cell, the transceiver is activated intermittently to receive signals therefrom, and wherein the control circuitry operates the transceiver to seek and receive signals over the second air interface during sleep periods of the transceiver intermediate the periods during which it is activated to receive the signals from the first cell.

38. A mobile station according to claim 35, wherein one of the first and second air interfaces comprises a TDMA air interface, and the other comprises a CDMA air interface.

39. A mobile station according to claim 38, wherein the control circuitry applies cell selection and reselection procedures over the CDMA air interface

in a manner substantially transparent to a GSM radio interface protocol layer of the mobile station.

40. A mobile station according to claim 38, wherein while the mobile station camps on the cell associated with the CDMA air interface, the control circuitry performs idle mode procedures generally in accordance with a GSM standard.

41. A mobile station according to claim 35, wherein the control circuitry operates using a radio resource management protocol layer having dual GSM and CDMA operating modes.

42. A mobile station according to claim 41, wherein the radio resource management protocol layer comprises parallel GSM and CDMA protocol sublayers and a combiner sublayer which selects either the GSM or the CDMA operating mode.

43. A mobile station according to claim 42, wherein the combiner sublayer receives messages from a mobility management protocol layer at a service access point in accordance with GSM standards, and maps the messages to primitives which it directs to the selected GSM or CDMA sublayer.

44. A mobile station according to claim 35, wherein the control circuitry controls the transceiver to receive signals over the second air interface responsive to a detected loss of coverage by signals over the first air interface.

45. A mobile station according to claim 35, wherein the control circuitry initiates monitoring of signals over the second air interface responsive to an indication that a predetermined monitoring criterion has been met.

46. A mobile station according to claim 45, wherein the indication comprises a message broadcast to the mobile station over the first air interface

that cells are available over the second air interface.

47. A mobile station according to claim 45, wherein the control circuitry initiates monitoring over the second air interface responsive to a level of the signals received over the first air interface.

48. A mobile station according to claim 47, wherein the transceiver is tuned to receive signals from a plurality of candidate cells over the first air interface, and wherein the control circuitry initiates monitoring over the second air interface when all of the signals received over the first air interface are below a predefined level for a predetermined period of time.

49. A mobile station according to claim 45, wherein the transceiver is tuned to receive signals from a plurality of candidate cells over the first air interface, and wherein the control circuitry initiates monitoring over the second air interface when the number of candidate cells over the first interface is less than a predetermined minimum number.

50. A mobile station according to claim 45, wherein the control circuitry initiates monitoring over the second air interface upon expiration of a predetermined time period during which monitoring over the second air interface has not occurred.

51. A mobile station according to claim 35, wherein the control circuitry is programmed to regulate energy expended by the mobile station in receiving the signals responsive to a desired level of energy consumption by the mobile station.

52. A mobile station according to claim 51, wherein the control circuitry sets a sampling rate at which to receive the signals responsive to the desired level of energy consumption.

53. A mobile station according to claim 51, wherein the control circuitry chooses a number of cells from which to receive the signals over the second air interface responsive to the desired level of energy consumption.

54. A mobile station according to claim 51, wherein the control circuitry further regulates the availability of the transceiver to receive the signals responsive to a desired level of quality of service provided by the mobile station.

55. A mobile station according to claim 35, wherein the control circuitry compares the signals received by the transceiver over the first and second air interfaces and applies reselection criteria to the comparison so as to determine whether to select the second cell.

56. A mobile station according to claim 55, wherein the control circuitry measures levels of the signals and weights the measured levels responsive to a predetermined air interface preference.

57. A mobile station according to claim 56, wherein the preference is set by a user of the mobile station.

58. A mobile station according to claim 56, wherein the preference is set by a network with which the base stations are associated.

59. A mobile station according to claim 56, wherein the mobile station stores a record of the preference.

60. A mobile station according to claim 55, wherein the control circuitry applies a predetermined hysteresis factor to the comparison so as to prevent recurrent reselection of the air interface.

61. A mobile station according to claim 55, wherein the control circuitry performs an assessment of strong neighbor cells when the mobile station is in a border area of coverage provided over the first air interface.

62. A mobile station according to claim 35, wherein the control circuitry compares power levels of the signals received over the first and second air interfaces.

63. A mobile station according to claim 35, wherein the control circuitry compares path-loss criteria derived from the signals received over the first and second air interfaces.

64. A mobile station according to claim 35, wherein the control circuitry selects the second base station responsive to selection by the mobile station of a public land mobile network with which to communicate.

65. A mobile station according to claim 35, wherein the at least one radio transceiver receives information broadcast over the first air interface in relation to criteria for interface reselection, and wherein the control circuitry determines whether the mobile station should reselect and camp on the second cell responsive to the broadcast information.

66. A mobile station according to claim 1, and comprising a Subscriber Information Module, which stores information in relation to criteria for interface reselection, and wherein the control circuitry determines whether the mobile station should reselect and camp on the second cell responsive to the stored information.

67. In a mobile wireless telecommunications system, a method for cell reselection by a mobile station camped on a first cell, comprising:

receiving signals over the air from a second cell;

determining whether the second cell belongs to a different location area from the first cell;

evaluating a characteristic of the signals, responsive to the determined location area of the second cell; and

responsive to the evaluation, selecting the second cell for camping in place of the first cell.

68. A method according to claim 67, wherein evaluating the characteristic of the signals comprises applying a threshold criterion to the signals, such the threshold for reselection is higher when the second cell belongs to a different location area from the first cell that when it belongs to the same location area.

69. A method according to claim 67, wherein determining whether the second cell belongs to a different location area comprises receiving a broadcast from the first cell indicating the location area of the second cell.

70. A method according to claim 67, wherein determining whether the second cell belongs to a different location area comprises looking up in a memory of the mobile station a stored record of the location area of the second cell.

71. In a mobile wireless telecommunications system, a mobile station, comprising:

a radio transceiver, which receives signals from a second cell while the mobile station is camped on a first cell; and

control circuitry, which determines whether the second cell belongs to a different location area from the first cell and processes the signals received from the second cell responsive to the determined location area of the second cell, so as to decide whether to select the second cell for camping in place of the first cell.

72. A mobile station according to claim 71, wherein the processing circuitry applies a threshold criterion to the signals, such the threshold for reselection is higher when the second cell belongs to a different location area from the first cell that when it belongs to the same location area.

73. A mobile station according to claim 71, wherein the radio transceiver receives a broadcast from the first cell indicating the location area of the second cell.

74. A mobile station according to claim 71, wherein the mobile station comprises a memory, in which a record of the location area of the second cell is stored.